There must be a basis in the art for combining or modifying the references as the Examiner has suggested. As stated in In re Geiger, 815 F.2d at 688, 2 USPQ2d at 1278 (Fed. Cir. 1987):

> "Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination. ACS Hospital Systems, Inc. v. Montefiore Hospital, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984)."

An obviousness rejection presumes the existence of differences between the subject matter claimed and the teachings of the prior art. As the In re Laskowski court stated:

> "Although the Commissioner suggests that Hoffman could readily be modified to form the Laskowski structure, "[t]he mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification." In re Gordon, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984). See also, e.g., Interconnect Planning Corp. v. Feil, 774 F.2d 1132, 1143, 227 USPQ 543, 551 (Fed. Cir. 1985); In re Grabiak, 769 F.2d 729, 731, 226 USPQ 870, 872 (Fed. Cir. 1985); In re Sernaker, 702 F.2d 989, 994, 217 USPQ 1, 5, (Fed. Cir. 1983).
>
> "The prior art does not suggest Laskowski's modification of the Hoffman [primary reference] band saw wheel, or provide any reason or motivation to make that modification. In re Regel, 526 F.2d 139, 1403 n.6,

> 188 USPQ 136, 139, n.6 (CCPA 1975) ("there must be some logical reason apparent from positive, concrete evidence of record which justifies a combination of primary and secondary references") (citing In re Stemniski, 444 F.2d 581, 170 USPQ 343 (CCPA 1971)). We agree with the Commissioner that the suggestion to modify the Hoffman structure need not be found in Hoffman. In this case, however, the only source of the suggestion is Laskowski; there is no prior art teaching that would provide the modification of using a loosely fitting tire, rising above the pulley flanges, to support the saw blade. See In re Geiger, 815 F.2d 686, 688, 2 USPQ2d 1276, 1278 (Fed. Cir. 1987)...."

In the present application, the Examiner has failed to point to something in the prior art that suggests in some way a combination of either of the primary references with the secondary reference(s) in order to arrive at the claimed invention. As can be seen from the above, absent such a showing in the prior art, the Examiner has impermissibly used hindsight analysis and used Applicants' teaching to hunt through the prior art for the claimed elements and to attempt to combine them as claimed.

Furthermore, the references cited cannot be combined as the Examiner suggests. The Gendreu and Rawicz references specifically require active input to operate. Specifically, Gendreu teaches the use of radar (Col. 1, lines 11, 15-23, et. seq.) and indicates that an "object of the present invention is to avoid these disadvantages and restrictions. In particular it eliminates a large proportion of the measurement noise, this noise being due to the conditions under which such measurements are normally made." A reading of the Background and Summary portions of Gendreu indicates he is

interested in correcting the errors introduced by the measurement noise present during active tracking of an object.

Rawicz teaches the use of "Sensory reference target position-reporting signals, typically radar return range, bearing and elevation parameters, are connected as inputs to the filter error node. In accordance with one aspect of the present invention, sensor reference errors from the input error node are converted to a target reference coordinate system (e.g., speed, course and angle of climb/descent)." (Rawicz, Col. 1, lines 36-43). Rawicz then continues to explain how his invention uses this information. Thus, it can be seen that Rawicz also teaches a system which requires active sensing of information, such as target, bearing, elevation, speed, etc., and would not be able to handle "passively collecting actual flight path data".

Additionally, neither Gendreu or Rawicz in any way teach or suggest the Examiner's suggested combination with Golinsky. Assuming one tried to so combine these references, it is clear neither the Gendreu or Rawicz references would work; they depend on active input. Furthermore, it would not have been obvious to one of ordinary skill in the art to have combined a passive reference (Golinsky) with the cited active sensor references (Gendreu and Rawicz) because they operate on entirely different input and employ entirely different approaches.

Independent Claims 10 and 30 were rejected under 35 U.S.C. 103 as being obvious over Gendreu or Rawicz in view of Golinsky and further in view of Newell et al. In light of the above remarks, this rejection is respectfully traversed.

Applicants' invention requires "passively collecting actual flight path data" (Claim 10) or "means for passively collecting actual flight path data" (Claim 30). As mentioned above, neither of the cited references (Gendreu or Rawicz) teach or disclose this

structural difference. Newell et al. also fails to teach or disclose this structural difference because it discloses a target course predictor for gun fire control requiring <u>active sensor input</u> (Col. 1, line 53: "For a given set of conditions (<u>radar</u>, director, computer, target maneuverability, time of flight, etc.) there is some optimum amount of smoothing which will result in the greatest chance of hitting the target" (emphasis added)). Further reading of Newell et al. supports this by the manner in which such input is handled, implying the input must indeed be active. Furthermore, when combined with Golinsky as the Examiner suggests, one still does not achieve Applicants' invention because the Gendreu, Rawicz and Newell et al. references teach active collection of flight data.

Not only does combination of Gendreu or Rawicz with Golinsky and Newell et al. fail to meet Applicants' disclosed structure or method, nowhere in any of these references is such a combination suggested. Therefore, independent Claims 10 and 30 should be allowed.

Claims 17 and 37 were rejected under 35 U.S.C. 103 as being obvious over Gendreu or Rawicz in view of Golinsky and further in view of Fukuhara et al. In light of the above remarks, this rejection is respectfully traversed. Claims 17 and 37 depend from allowable independent claims 15 and 35 and specify "further including the step of generating initial model data" (Claim 17) or "wherein said processing device is operable to calculate initial model data" (Claim 37). Fukuhara et al. fails to teach or suggest this combination.

Fukuhara et al. discloses a position measuring system for a vehicle requiring active sensor input (Col. 1, lines 8-11; Col. 2, lines 5-11; Col. 9, lines 44-45, etc.). Furthermore, as discussed above, when combined with Golinsky as the Examiner suggests, one still does not achieve Applicants' invention because the Gendreu

and Rawicz references teach active collection of flight data.

Not only does combination of either Gendreu or Rawicz with Fukuhara et al. fail to meet Applicants' disclosed structure or method, nowhere in any of these references is such a combination suggested. Therefore, dependent claims 17 and 37 should be allowed.

Therefore, in light of the above, none of Applicants' claims are obvious over Gendreu or Rawicz in view of Golinsky, in further view of Newell et al. or Fukuhara et al., taken singly or together, and Claims 1-4, 10, 15, 17, 20-24, 30, 35, and 37 should be allowed.

Claim 5 depends ultimately from Claim 1 and specifies "said error measurement includes a mean squared sighting error determined as an average of the sum of the squares of said azimuth sighting error and said elevation sighting error over a plurality of intervals at which actual target flight path information is collected". Claims 6-9 depend from Claim 5 and require said error measurement further includes "a velocity penalty based on a deviation between an estimated velocity of the target derived from said model data and a predetermined nominal velocity", "an azimuth position penalty based on a deviation between said azimuth sighting error and a predetermined azimuth sighting error bandwidth", "an elevation position penalty based on a deviation between said elevation sighting error and a predetermined elevation sighting error bandwidth", and "a maximum range position penalty imposed when the estimated range of the target plane derived from said model data is in excess of a predetermined maximum acquisition range", respectively. These claims incorporate the limitations of Claim 1, and any intervening claims, are not obvious over the cited references taken singly or in combination, and are therefore allowable.

Claims 11-14 depend directly or ultimately from Claim 10 and

require "further including the step of deriving a second-order Taylor series approximation of an error measurement equation used to calculate said error measurement", "wherein said step of calculating the perturbation model includes the steps of: determining a perturbation direction which minimizes said second-order Taylor series approximation of said error measurement; and determining an optimum perturbation magnitude along said perturbation direction which minimizes said error measurement", "wherein said step of determining said perturbation direction includes the steps of: ...determining a perturbation vector...; and defining a perturbation direction in the direction of said perturbation vector", "wherein said step of determining an optimum perturbation magnitude includes the steps of: defining lower and upper magnitude boundaries encompassing said optimum perturbation;...calculating an intermediate magnitude...setting said optimum perturbation magnitude equal to said intermediate magnitude if said value of the derivative of the error measurement equation at said intermediate magnitude is equal to zero; and setting said optimum perturbation magnitude equal to an average of said lower and upper magnitude boundaries if said lower and upper magnitude boundaries are within a predetermined range", respectively. These claims incorporate the limitations of Claim 10, and any intervening claims, are not obvious over the cited references taken singly or in combination, and are therefore allowable.

Claim 16 depends from Claim 15 and further requires "said step of adjusting the flight path includes the steps of: ...calculating a sighting matrix W...; and adjusting the flight path of the monitoring plane in a direction given by an eigenvector corresponding to the smallest eigenvalue of matrix W." This claim incorporates all of the limitations of Claim 15, is not obvious over the cited references taken singly or in combination, and is therefore allowable.

Claims 18-19 depend ultimately from Claim 1 and specify "said

initial model data includes an initial target velocity v_T calculated as:" with each claim describing a different way to calculate such initial target velocity. These claims incorporate all of the limitations of Claim 1, and any intervening claims, are not obvious over the cited references taken singly or in combination, and are therefore allowable.

Claims 25-29, 31-34, 36, and 38-39 are also allowable based on similar reasoning to the remarks given above in connection with Claims 5-9, 11-14, 16, and 18-19.

It is respectfully submitted that the claims recite the patentably distinguishing features of the invention and that, taken together with the remaining claims and the above remarks, the present application is in proper form for allowance. Re-examination and reconsideration of the application are requested. Allowance of the claims at an early date is solicited.

Respectfully submitted,

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